

**CRINODESSUS AMYAE, A NEW NEARCTIC GENUS AND SPECIES OF  
PREDACEOUS DIVING BEETLE (COLEOPTERA: DYTISCIDAE:  
HYDROPORINAE: BIDESSINI) FROM TEXAS, U.S.A.**

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*Abstract.*—*Crinodessus amyae* n. gen. and n. sp. is described from southwestern Texas, U.S.A. The genus is separable from all other genera of Bidessini by the combination of 1) cervical line posterior of and separated from posterior margin of the eye, 2) separation of the genal line from the ventral margin of the eye broad, 3) apical segment of the paramere elongate, 4) dense microreticulation on the ventral surface consisting of minute, isodiametric cells, 5) relatively large size for members of the tribe, 6) distinctive habitus with the pronotum cordate and the body elongate and depressed, and 7) anterior clypeal margin extended anteriorly and prominently angulate. The similarity in habitus and other characters between *Crinodessus* and *Boongurrus* Larson is hypothesized to be a result of homoplasy due to similar behavior and common adaptation to a similar habitat. *Liodessus* Guignot is tentatively proposed to be the sister genus of *Crinodessus*.

*Key Words:* Taxonomy, predaceous diving beetle, Dytiscidae, new genus, Texas

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Since Biström's (1988) review of the genera of the tribe Bidessini, two additional genera have been described, *Boongurrus* Larson (1994) from Queensland, Australia, and *Comaldessus* Spangler and Barr (1995) from Texas, U.S.A. Both are monotypic. The following new species from southwestern Texas cannot be satisfactorily placed into any existing genus of Bidessini. Therefore, a new genus is described herein to include it. The genus clearly belongs to the tribe Bidessini based on the presence of two-segmented parameres as defined by Biström (1988).

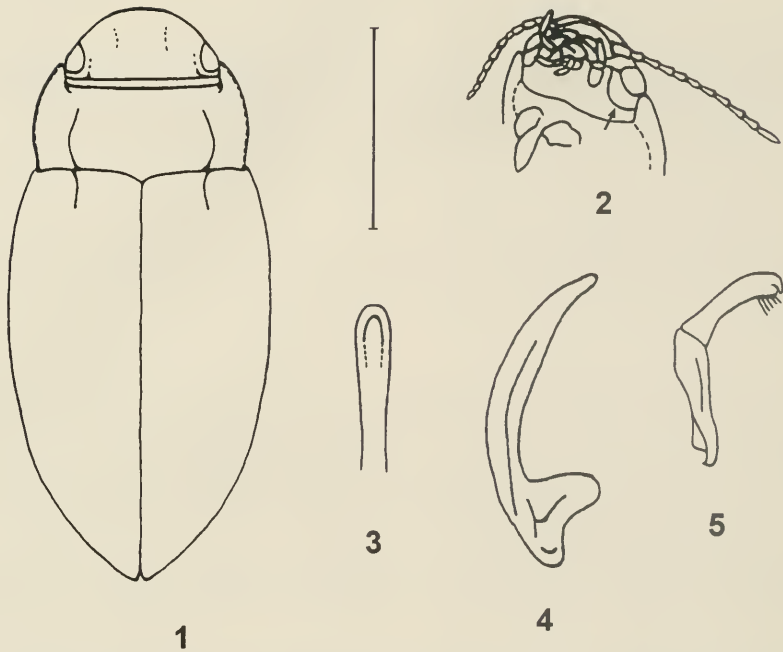
The following description follows the terminology and style of Larson (1994). Measurements were taken with the aid of an ocular micrometer in a Wild M3C dissecting microscope. Illustrations were made using a drawing tube mounted to a Wild M3 dissecting microscope.

***Crinodessus* Miller, new genus**

Type species.—*Crinodessus amyae*, new species.

Diagnosis.—The combination of the following characters is diagnostic for *Crinodessus*: 1) Separation of the transverse cervical line and posterior margin of the eye; 2) separation of the genal line from the margin of the eye broad; 3) apical segment of the paramere elongate; 4) dense microreticulation on the ventral surface of the body consisting of minute, isodiametric cells; 5) relatively large size for members of the tribe; 6) distinctive habitus with cordate pronotum and elongate, depressed body; and 7) prominently anteriorly extended and angulate anterior clypeal margin.

Description.—Small, length 2.58 mm; body (Fig. 1) elongate; distinct discontinuity between pronotum and elytron in dorsal view; depressed. Color brown, slightly



Figs. 1-5. *Crinodessus amyae*. 1, Habitus. 2, Ventral surface of head, oblique view, showing genal line (indicated by arrow). 3, Median lobe of aedeagus, dorsal view. 4, Median lobe of aedeagus, lateral view. 5, Paramere, lateral view. Scale bar = 1 mm for Figs. 1 and 2 only.

darker on head and pronotum. Dorsal and ventral surfaces moderately punctate, ventral surfaces densely microreticulate.

**Head:** With clypeus prominently extended, forming angle with dorsal and ventral surfaces; with a distinct transverse line (cervical line) located between level of posterior margin of compound eye and margin of pronotum (Fig. 1), line relatively straight; eyes relatively small, head width between eyes/head width across eyes = 0.71; with a slightly depressed line near and parallel to posteromedial margin of eye; gena with distinct, curved line from posterolateral margin of head to lateral edge of base of maxilla (Fig. 2), region between eye and line impressed, more strongly so in anterior portion; apical palpomere of each palpus fusiform, apically bifid; antennomeres 2 and 3 subequal in length, antennomere 4, 0.6 length of 3, antennomeres 5-10 more rounded and broader anteriorly than posteriorly.

**Pronotum** (Fig. 1): In dorsal aspect with

lateral margins strongly rounded, maximum width anterior to middle, lateral margin slightly sinuate basally with posterolateral angle acute, posterior margin evenly curved on each side of middle; lateral bead narrow and of equal width throughout; disc with sublateral, basal striae on each side of middle, stria extending about 0.6 length of pronotum measured along same general line as stria, stria slightly curved throughout length; lateral margin curved downwards on posterior angle. Scutellum not visible.

**Elytron** (Fig. 1): Without sutural stria; basal stria present, originating slightly medial to base of pronotal stria, about 0.5 length of pronotal stria, abruptly curved in basal 0.25, thereafter straight and approximately parallel to elytral suture; disc strongly flattened, without lateral grooves or ridges; epipleuron broad and visible to base in lateral aspect; not impressed basally, without oblique, transverse carina; gradually narrowed apically; evident to level of visible sternum 5. Hind wings present.

*Prosternum:* With anterolateral pore narrowly separated from anterior margin; with prominent, longitudinal, medial convexity extending from anterior margin and continuous with prosternal process; prominent setae on sides of convexity. Prosternal process in different plane than prosternum; blade of process ovate, laterally sharply margined, and setose; slightly convex in lateral aspect; apex barely reaching anteromedial lobe of metasternum, with minute spine directed posteroventrally.

*Metasternum:* Metacoxae and metasternum combined length about 0.33 length of body; metasternum with anteromedial process rounded, not grooved, entire surface moderately punctate without row of punctures laterad to midline; metasternal wing strongly arched and apically narrowed to epipleuron; metacoxal lines very lightly impressed, extending to metasternum, lines divergent from near base, slightly less than twice as long as distance between them at narrowest point; metacoxal processes depressed medially to level of abdominal sternum, each process with a minute, acute lobe extending over base of trochanter.

*Legs:* Profemur with arched apicoventral comb of yellow setae, its length about 0.21 length of profemur along ventral margin; maximum width of protibia 0.30 of its length, gradually widened from base to apex; anterior surface of protibia smooth and shiny with setae along margins; protarsomeres 1–3 broadly expanded, protarsomere 4 hidden in lobes of 3; metatrochanter 0.39 length of metafemur; metafemur with maximum width near middle, narrowed thereafter due to slight subapical convexity along posterior margin, slightly widened and rounded at apex; metafemur length 4.13 times greatest width; metatibia evenly widened apically, arcuate with point of greatest curvature about 0.4 length from base, ventrally and mesally with natatorial setae; metatarsus with natatorial setae, setae 1.38 times metatibial length.

*Genitalia:* Median lobe of aedeagus (Figs. 3, 4) simple, evenly arcuate in lateral

aspect; lateral margins slightly divergent to rounded apex in dorsal aspect; paramere (Fig. 5) 2-segmented, apical segment about 0.79 length of basal segment, with a minute, hook-like apical projection. Female and larva unknown.

*Etymology.*—The masculine generic name is derived from the Greek word *crino*, “separate,” referring to the separation between the cervical line and the posterior margin of the eye, and *dessus*, the suffix of the type genus of the tribe, *Bidessus* Sharp.

*Discussion.*—*Crinodessus* shares several characters with *Boongurrus* Larson including the elongate and flattened shape of the body, the cordate pronotum and the broad separation of the genal line from the margin of the eye. However, *Crinodessus* differs from *Boongurrus* in having an angulate anterior margin of the clypeus, an elongate apical segment of the paramere, and separation of the cervical line and the posterior margin of the eye. In addition, *Boongurrus* lacks microreticulation on the ventral surface, is more densely punctate and is smaller. It seems likely that the similarity between these genera is a result of homoplasy rather than close relationship. According to Larson (1994), small eyes, cordate pronotum, and elongate flattened shape are characteristic of species which live in substrate or move through interstices, the habitat of *Boongurrus* (Larson 1994) and the presumed habitat and behavior of *Crinodessus*. The broad separation of the genal line from the margin of the eye and separation of the cervical line from the eye in *Crinodessus* may have resulted from reduction in size of the eye and, partly, from elongation of the body. If *Crinodessus* and *Boongurrus* are closely related, it would be an unusual relationship given the broadly disjunct distribution of the two genera.

The simple shape of the genitalia along with the presence of a transverse cervical line and lack of sutural line on the elytra in *Crinodessus* indicate a possible sister-group relationship with *Liodessus* Guignot. *Crinodessus* keys to *Liodessus* in Young's



(1967) and Biström's (1988) keys to genera of Bidessini. However, *Crinodessus* differs from *Liodessus* in all of the above diagnostic characters except elongate apical segment of the paramere, a presumably plesiomorphic character (Larson 1994). The relationship between these two genera is, therefore, not well founded. However, *Crinodessus* shares no obvious affinities with any other genus.

*Crinodessus amyae* Miller, new species  
(Figs. 1–5)

Holotype.—Male: labelled "TEXAS: Presidio County, 12 mi NE Ruidosa, Pinto Canyon, 23 October 1985, Rawlins & Davidson, legs./HOLOTYPE *Crinodessus amyae* K. B. Miller 1997 [red label]." Deposited in The Carnegie Museum of Natural History. Specimen dissected with genitalia in microvial of glycerin mounted on pin. According to R. Davidson (in litt.), the specimen was collected from a clear desert stream which flows over clean sand and gravel in the Chinati Mountains of southwestern Texas. The stream is about a meter wide with a few deeper pools.

Description.—*Measurements*: Length 2.58 mm; maximum width 1.19 mm; 2.17 times longer than wide, pronotum 0.85 times maximum width of body.

*Color*: Head brown, slightly darker brown anteromesad of each eye, slightly lighter on surface of frons and along margin of each eye; 4 basal antennal segments yellow, brown thereafter; palpi yellow-brown; pronotum brown, darker medially and gradually more pale laterally; elytra slightly lighter brown than head and pronotum, without maculations; ventral surface uniformly yellow-brown.

*Sculpture*: Head shiny, lightly shagreened and finely and evenly punctate; no punctures posterior to transverse line. Pronotum shiny, anterolateral surface slightly shagreened; moderately and evenly punctate; punctures larger than on head and separated by about 1.5 times puncture diameter

except less dense medially to apical half of each stria; slightly longitudinally rugulose medially to base of striae. Elytron shiny and smooth; punctures similar in size and distribution to those of pronotum; punctation evident immediately adjacent to suture; slightly rugulose medially to bases of striae. Epipleuron lightly shagreened and moderately punctate; punctures separated by 1.5–2.0 times puncture diameter and with short, decumbent setae. Metasternum, metacoxae and abdominal sterna with distinct microreticulation of minute, isodiametric cells covering entire surface; microreticulation less conspicuous on abdominal sterna.

*Etymology*.—I take pleasure in naming this species in honor of my friend and wife, Amy, who has been a source of great support during my studies of Dytiscidae.

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